

RECLAMATION WORK IN THE VALLEY OF RIO GRANDE IS A BIG PROJECT

Farmers of the Valley Demonstrate What Can Be Done With the Land and Water; Widespread Prosperity Assured With the Completion of the Great Elephant Butte Dam.

THOUGH water for irrigation purposes from the storage basin behind the big Elephant Butte dam will not be available until next spring and the work on the structure of the dam has been in progress for several years past, the real reclamation of the valley of the Rio Grande, above and below El Paso, may have said to be begun in 1914.

During that year an enormous amount of work was done by that branch of the Reclamation service not directly connected with the construction of the dam. Surveys were made, canals laid out and many other things done with a view toward facilitating the use of the water by farmers once the storage has been begun.

City Interested in Whole Project. While the city of El Paso is interested in the development of the entire 150,000 acres which will be reclaimed by water coming from the Elephant Butte storage dam, because it will benefit greatly and materially by that development, it is particularly interested in that portion of the project south and east of the city known as the El Paso valley.

During 1914, \$200,000 was spent by the Reclamation service upon the widening and deepening of the Franklin canal, as the main artery of the El Paso valley unit of the project is called.

Many Improvements Last Year. New intakes were built, the canal was widened and deepened from the intake just above the El Paso-Mexican diversion dam to Yleta, a distance of 12 miles, and was cemented from the headgate almost its entire length to the Cotton addition in the southeastern portion of the city. In the widening and deepening process 252,100 cubic yards of earth excavation were found necessary and 221,000 square feet of concrete lining were used on that stretch of the canal which was cemented.

Gates and Bridges Built. Five concrete gates, nine concrete bridges, seventeen wood and steel bridges, and 24 water diversion gates were built, increasing the capacity of the canal from 150 cubic feet of water per second to 450 cubic feet. Twelve hundred men and 700 horses were employed while these improvements were being made.

The work laid out to be done by July 1, 1915, involves the construction of the Mesilla diversion dam and three-quarter miles southwest of Las Cruces, at a cost of \$100,000, the construction of the East Side main canal, which will begin at the Mesilla diversion dam and run down through that portion of the Mesilla valley, lying on the east side of the river, for a distance of 10.12 miles, construction of the west side main canal, which will begin at the Mesilla diversion dam and run 14.12 miles down the river, the construction of the Franklin canal in the El Paso valley from Yleta to Clint, a distance of nine miles, and the construction of the main feeders from Franklin canal at Yleta through Socorro to San Elizario.

Will involve \$150,000.

The improvements in the El Paso valley, which it is intended shall be finished by July 1, will involve an expenditure of \$150,000.

Whether or not any work shall be done after that date depends upon the action of congress.

Hitherto, appropriations for reclamation work have been made from certain funds by the secretary of the interior, through the Reclamation department, but a recent ruling puts the expenditure of governmental funds for irrigation purposes in the hands of the national congress and appropriations can only be made in the regular way.

It is not expected, however, that there will be any delay caused by the change in methods, as the national congress is known to be favorable to the carrying out of existing reclamation plans.

Work on Dam Begins. Work on the Mesilla diversion dam mentioned above, has already been begun. This is also true of work on the east side canal which is calculated to deliver 250 second feet of water to the community ditch, besides supplying water for the irrigation of as much territory hitherto without water above the three sinks intake.

The new west side main canal, construction of which will involve the removal of 248,000 cubic yards of earth, will carry water to Santa Tomas, San Miguel, Chamberino, La Mesa and La Union, making possible the development of thousands of acres which have hitherto been uncultivable because of lack of water.

Lateral System Surveyed.

While all of this big work is going on, surveys are constantly being made for determining where and in what manner systems of laterals should be laid out, in order that the greatest amount of land may be served without waste and at the lowest possible cost. The idea the Reclamation service is working on provides for the location and construction of diversion dams and the construction of main canals before work is begun upon the laying out and construction of laterals.

Why Dams Are Made.

Inasmuch as the bed of the Rio Grande is to be used in this project as a carrier or main canal, it has been found necessary, in order to get the water to arable land lying at comparatively high levels, to locate diversion dams and main canals at points where the greatest possible storage can be secured and the greatest possible acreage served.

Five diversion dams will be built before the project is fully completed: One at Palomas, for the Palomas valley; one at Percha, for the Rincon valley; one at Lordsburg, and another at Mesilla, for the Mesilla valley, and the El Paso diversion dam, which will furnish water for the El Paso and the Juarez valleys. Two of these, the El Paso and the Lordsburg, are completed. The Mesilla dam is under construction

FRANKLIN CANAL HEADGATES



and sites for the others are being surveyed.

Farm Maps Being Made. Surveys are also being made of every piece of property from the big dam to the very lowest point on the project in the vicinity of Fort Hancock, Texas, and the data secured while these surveys are being made will be shown in a series of "farm maps" which will prove themselves of value in many ways.

During the year 1914 there were under irrigation upon the whole project 69,000 acres of land, not counting what may have been under irrigation on the Mexican side of the river. Of this, 41,000 acres were planted to alfalfa and 8000 acres of wheat, the remaining 20,000 acres being given over to fruit, forage, root crops and gardens.

In the El Paso valley alone 5000 acres of alfalfa were grown, yielding 22,000 tons of hay. Last year there were 236 farms in the El Paso valley, averaging 41 acres each. Of fruit crops pears brought the greatest return to growers. Last year there were shipped from pear orchards at Yleta and Clint, 18 carloads of pears which netted their owners \$114 per box, or a total of \$21,000.

What the Land Will Do.

Volumes have been written and circulated which have stated in general terms what the fertile land of the valleys up and down the river from El Paso ought to do when supplied with water, but these are not always satisfying to the prospective purchaser who wants the land for home building purposes but who would like to be sure that it will earn an income on the investment which will assure him a living.

Good for 12 Acres.

Dr. A. S. Robinson last year had 12 acres of oats in the Mesilla valley, near Las Cruces, which he reaped in June, threshing 75 bushels to the acre. As soon as the oats were off the land he replowed the latter and planted to amber cane in drill rows, getting water for it on July 1. He began cutting on Oct. 1 and put away 157 tons of ensilage which cost him \$261 for harvesting and

putting away in a two ton silo, which he erected during the summer. This winter he is feeding 140 Hereford calves, feeding them per day 1700 pounds of ensilage, 700 pounds of alfalfa and 150 pounds of cottonseed meal. The alfalfa and meal he bought with the proceeds of the sale of the oats grown on the land earlier in the season. At the rate at which he is feeding ensilage he can feed his herd of 140 calves for 214 days.

\$80 an Acre for Alfalfa.

John Hardy, on 20 acres of land in the lower Mesilla valley, on the west side of the river, put 15 acres into alfalfa and in his first season cut 75 tons of hay, besides feeding his stock and sold the hay for \$12 per ton on the ranch. Five tons of alfalfa or \$40 an acre for the first year was not a bad yield.

50 Bushels of Wheat per Acre.

Oscar Snow, at Mesilla Park, has raised 50 bushels of wheat to the acre, but does not parade this fact as an average yield of that cereal under conditions existing in the valley. The State Agricultural college experiment station has developed a variety of wheat which has averaged under ordinary conditions 40.7 bushels per acre.

F. H. Walker, in the Rincon valley, has grown 20 acres of wheat from which he obtained 45 bushels to the acre and figured his net profit therefrom at \$25 per acre.

50 Bushels of Corn.

W. C. Wilkins, at Chamberino, on 15 acres of ground, raised 50 bushels of corn which he sold at 46 cents a bushel, or \$23 per acre, leaving him fodder for his stock which more than paid the cost of production of the whole crop.

P. C. Merrill, of Las Cruces, threshed 2000 bushels of oats from 40 acres, selling at 45 cents, and grew a second crop of forage on the same land.

Alfalfa Seed Pays.

Theo. Rouault grew 50 bushels of oats to the acre and from 15 acres of alfalfa obtained 10,000 pounds of alfalfa seed which he sold at 20 cents per pound or \$10.00 per acre. The straw from the alfalfa grown for seed getting purposes more than paid the cost of growing and

harvesting the seed and Mr. Rouault had, besides, three cuttings of alfalfa hay from the same land.

Big Yield of Barley. James Queenberry netted \$49.29 per acre from five acres of barley and from the same land, the same season, grew a crop of milo maize which netted \$20 per acre, a total yield per acre of \$79.29.

F. C. Barker, from 11 acres of asparagus, sold \$25.00 worth of asparagus at an average price of \$2.25 per 100 pounds, and after paying all expenses had \$1,155.56 net profit from his 11 acres.

From nine and nine-tenths acres of cantaloupes Mr. Barker netted \$125.21.

Stewart's Good Showing.

J. G. Stewart, of Mesilla Park, cleared \$2000 on 35 acres of apples and \$3000 from 60 acres of alfalfa, a total of \$12,000 from 95 acres. On five acres devoted to building site and garden he sold small fruits and vegetables enough to buy such table necessities as must be bought and provide the family clothing.

H. R. Hannum, from 45 Bartlett pear trees, growing on about one-half acre of land, sold 255 boxes of fruit at \$1.75 per box, a total of \$672.55, leaving him \$422.57 net profit after paying picking, packing and cartage charges.

Drains and Work Will Do It.

The foregoing are but a few examples of what can be done by a combination of water, land and sunshine, mixed with brains and a disposition to work. All farmers in the Mesilla and El Paso valleys have not done so well but that they have not is very often due to some lack in themselves. Either they do not plow deeply enough, cultivate as frequently as they should, keep their irrigation ditches clean to carry an abundance of water when it is available or are too sparing in the use of the hoe or use too much water.

Too Much Water Used.

Speaking of using too much water reminds one there is a disposition on the part of the experts in water use connected with the reclamation service to believe that too many farmers not experienced in the matter of irrigation, drown out their crops and

ELEPHANT BUTTE DAM NOW 87 PERCENT COMPLETE -- BALDWIN

(Continued from previous page.)

From March 1, 1914 to Jan. 21, 1915, more than 246,000 cubic yards of masonry have been placed, an average of 31,500 cubic yards per month for the entire period.

Fume Closed Jan. 6.

A very interesting event took place Jan. 6 of this year when the fume that had been carrying the Rio Grande for more than two years, was closed. This was successfully accomplished in accordance with prearranged plans. Forty hours from the firing of the blast, that furnished material for the closure,

spoil their land by the use of too much water. They are discouraging this overuse of water on most government irrigation projects.

In the salt river valley water rates are based upon the use of about 50 percent of the amount formerly permitted to be taken from the canal.

Farmers Are Frowned.

The farmers at first rebelled but after trying the government's plan for a year discovered that they grew better crops on the reduced amount of water allowed them and there were fewer cases of "alkali" lands reported as the result of overuse of water, though no hard and fast rules regarding the amount of water that shall be used have been made by the government in the Elephant Butte project. It is believed the engineers will not encourage use of such great volumes of water for irrigation as has hitherto been the custom wherever irrigation is practiced along the Rio Grande.

Silos Are Coming In.

Up to this time alfalfa has been the "stable" crop of the Mesilla and El Paso valleys. This has been put up in the form of hay and at the prices which prevail in the El Paso market has proved to be an immensely valuable crop for the growers. It involves, however, much labor, as well as care in harvesting, and with an abnormal rainfall of 17.2 inches moisture, such as fell in the El Paso valleys last year, much hay is spoiled. There is a disposition on the part of many growers, both up and down the river from El Paso, to convert their alfalfa into ensilage, which in turn is fed to the stock. This not only saves the labor of haling and the loss from spoilage, as well as cartage to market, but gives a much greater profit per acre in the form either of beef or of dairy products.

Experiments Succeeded.

During the year silos were built by Dr. A. S. Robinson, of Las Cruces, whose experiences are given above; by the Bailey Bros., of Chamberino, who, during the year, erected ten 50 ton silos of wooden construction, which they filled with cow peas, alfalfa and milo maize, and are now feeding to 800 head of stock; by Floyd Turney, who has several silos under construction in the upper valley, and by Tom Powers, of El Paso, at his ranch near Yleta.

More Will Be Built.

So satisfactory has been the result obtained by those who have erected silos that a general adoption of the plan is looked for this year and it is expected that hundreds, if not thousands, acres of land will be planted to milo maize, kaffir corn, sorghum and other forage crops for ensilage purposes during the season of 1915. This will enable the feeding of many cattle and the furnishing of a better grade of beef than has ever before been obtained for slaughtering purposes in this market.

the river was under absolute control.

During that time, an earth and rock fill dam had been built to a height of 24 feet and that it was well built was proved, for it held back the river until the water commenced flowing over it. In 25 hours the masonry in flume section of dam was brought up 20 feet.

Water passed through the dam for the first time by gravity at 9 p. m. Jan. 7. About one and one-half miles north-west of the dam there is a low place in the rim of the reservoir that is being closed by an earth and rock fill dam that will contain about 175,000 cubic yards of material. The dam will be 2000 feet long, 50 feet in maximum height and 20 feet wide on top. This also is being constructed by government forces. A temporary camp was established in November of last year, the necessary equipment acquired and construction is now well under way. With the organization as at present and at the rate of progress now being made this should be completed in June of this year.

Status of Work Now.

The status of the work at the present time is about as follows: With the exception of less than 200 feet of the upper portion of the abutments, excavation for the dam is complete. Masonry is in progress over the entire length of completed foundation, approximately 800 feet. The lowest portion of masonry is at elevation 4275 or 50 feet above old river bed, while the highest portion is at elevation 4350. The gates, valves and conduits are all in place and have been tried out.

Is 87 Percent Completed.

The Elephant Butte storage project as a whole, including roads, embankment, spillway and all auxiliary features, is about 87 percent completed. Unless something unforeseen happens the lowest portion of the masonry should be at least 115 feet above old river bed before April 1, 1915.

The foregoing description indicates that the dam is nearing completion, but much interesting work yet remains and it is hoped that many will visit Elephant Butte during the present season. Visitors are always welcome and by calling at the office guides can be obtained who will gladly show and explain the most interesting features.

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THE location of this building is ideal, overlooking the city of El Paso, the beautiful Rio Grande valley, and the Franklin range of mountains. This site obtains all the advantages and conveniences of a modern city, located in the suburbs away from the smoke and noise, and is also in close proximity to historic Fort Bliss, where band concerts are an almost daily occurrence, and many interesting events and army maneuvers are being held at all times.

El Paso is the largest and most progressive city in the southwest, and if the patient feels that he should remain in this climate after leaving the sanatorium, the opportunities for investment or employment are of the best. There are also many interesting places to be seen in and around El Paso, and the patient has something with which to keep his mind occupied.

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